

Arrhythmias

REMOTE MONITORING OF CARDIOVASCULAR IMPLANTABLE ELECTRONIC DEVICES IS TIME- AND WORK-INTENSIVE

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Monday, March 26, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Monitoring Arrhythmia Patients: Externally, via Implanted Devices and Wearable Defibrillators
Abstract Category: 18. Arrhythmias: Devices
Presentation Number: 1245-514

Authors: *Edmond Cronin, Betty Ching, Niraj Varma, Bruce Lindsay, Bruce Wilkoff, Cleveland Clinic, Cleveland, OH, USA*

Background: Ever-expanding numbers of cardiovascular implantable electronic devices are accompanied by an increasingly onerous burden of device clinic follow-up. Remote monitoring (RM) may be less time-consuming than in-office follow-up, however its effect on workflow has not been examined.

Methods: We assessed the time and workflow implications of remote monitoring in a busy device clinic (>11000 in-office and >9000 remote follow-ups per year). One device nurse was responsible for all RM activities each day, including analysis of received transmissions, scheduling, and contacting patients who missed transmissions to encourage compliance. Detailed workflow data were prospectively collected over a two-week period.

Results: 500 remote transmissions were received from 434 patients during the study period - 346 implantable cardioverter defibrillator (ICD), 84 pacemaker, and 70 implantable loop recorder (ILR) transmissions. These were received on four RM platforms (CareLink 56.4%, Merlin.net 21.4%, Latitude 17.8%, Home Monitoring 4.4%). 114 (32.9%) ICD, 22 (26.2%) pacemaker, and 2 (2.9%) ILR transmissions were unscheduled. Overall, 131 (26.2%) transmissions demonstrated clinically important findings, however only 41 (8.2%) resulted in physician notification. 28 (5.6%) were duplicate transmissions. The mean time spent per transmission was 11.5±7.7 minutes. Transmissions which revealed clinically important findings took longer to process than those which did not (21.0±7.4 v 10.1±2.1 minutes, p<0.05). 49.2% of scheduled remote transmissions were missed due to patient non-compliance. Telephone follow-up of patients who missed scheduled remote transmissions took a mean of 55.1 minutes per day (range 20-98 minutes).

Conclusions: Analysis of RM transmissions on currently available platforms has significant implications for device clinic workflow. Clinically important findings are frequent, and missed and duplicate transmissions are common, especially with systems requiring patient interaction. While analysis of routine transmissions is rapid, this is offset by time spent encouraging compliance with scheduled transmissions.